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Pollution Prevention Opportunity Assessment for Sandia National Laboratories/New Mexico's Fleet Services Department

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Prepared by
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Pollution Prevention Opportunity Assessment for Sandia National Laboratories/New Mexico's Fleet Services Department

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Abstract

This Pollution Prevention Opportunity Assessment (PPOA) was conducted for the Sandia National Laboratories/New Mexico's (SNL/NM) Fleet Services Department between December 2001 and August 2002. This is the third PPOA conducted at Fleet in the last decade. The primary purpose of this PPOA was to review progress of past initiatives and to provide recommendations for future waste reduction measures of hazardous and solid wastestreams and increasing the purchase of environmentally friendly products. This report contains a summary of the information collected and analyses performed with recommended options for implementation. The Sandia National Laboratories/New Mexico Pollution Prevention Group will work with SNL/NM's Fleet Services to implement these options.

Acknowledgements

The author thanks Art Sena, Gerald Clark, Jerry Powell Jr., Manuel Rodriguez, and Jack Mizner, for their participation in the inter-disciplinary team that was responsible for evaluating processes, identifying the sources of the facility's wastestreams, and generating the pollution prevention (P2) opportunities called out in this report.

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Executive Summary

The Fleet Services Department operates the Motor Pool Complex at Sandia National Laboratories/New Mexico (SNL/NM) where they perform preventive, predictive and corrective maintenance activities on vehicles and equipment controlled by SNL/NM. They operate a Vehicle Maintenance Facility for DOE/NNSA OTS fleet over-the-road activities and represent SNL in operations and management of GSA leased vehicles. The Fleet Services Department is located in Buildings 874, 875, and 876 on the Northeast side of SNL/NM. Fleet Services was established in 1948 and owns and leases over 2,300 vehicles and equipment valued in excess of $50,000,000. This is the third PPOA conducted at Fleet in the last decade. The primary purpose of this PPOA was to review progress of past initiatives and to provide recommendations for future waste reduction measures of hazardous and solid wastestreams and increasing the purchase of environmentally friendly products. The PPOA team consisted of pollution prevention, facility managers and operations personnel. This inter-disciplinary team was responsible for evaluating processes and wastestreams, and generating the pollution prevention (P2) opportunities identified in this report.

The largest wastestreams for the facility were targeted for reduction. The PPOA team evaluated the wastestream data and 10 potential waste reduction ideas were generated. The ideas were then evaluated based on effectiveness, feasibility, and cost. The ideas were categorized using a P.I.C.K (Possible-Implement-Challenge-Kill) Chart and 6 opportunities were selected for further evaluation. The 6 P2 opportunities described below are recommended for implementation. These opportunities showed annual cost savings with quick payback periods, and would prove to be effective in reducing hazardous and solid waste and increasing the purchase of environmentally friendly products.

Opportunity 1: Centralized waste collection points and visual aids

Opportunity 2: Training: Wastestream and outside user training

Opportunity 3: Fuel tags

Opportunity 4: Alternate user list for excess materials

Opportunity 5: Product Substitution & Smart Procurement

Opportunity 6: Reengineer Car wash

Acronyms

FY	Fiscal Year
P2	Pollution Prevention
P.I.C.K Chart	Possible Implement Challenge Kill Chart
PPE	Personnel Protective Equipment
PPOA	Pollution Prevention Opportunity Assessment
RCRA	Resource Conservation and Recovery Act
ROI	Return on Investment
SNL/NM	Sandia National Laboratories/New Mexico

Introduction

Sandia National Laboratories/New Mexico (SNL/NM) conducts pollution prevention opportunity assessments (PPOAs) for line organizations to evaluate waste-generating processes and identify cost-effective methods to reduce waste. The completed PPOA then is presented to the line organization for implementation. The goal of a PPOA is to:

- Reduce waste volumes and toxicity
- Implement a system of tracking and reporting environmental improvements
- Reduce the line organization's operational costs

This PPOA was conducted for SNL/NM's Fleet Services Department between December 2001 and August 2002. The primary purpose of this PPOA was to provide recommendations for possible waste reduction measures of Fleet Services' hazardous and solid wastestreams and increasing the purchase of environmentally friendly products. The process used to perform this PPOA is out lined in Figure 1. This report contains a summary of the information collected and analyses performed with recommended options for implementation. The SNL/NM Pollution Prevention (P2) staff (3124) will work with Fleet Services to implement these options.

The PPOA team consisted of P2 staff, facility managers, and operations personnel. This inter-disciplinary team was responsible for evaluating processes and wastestreams, and generating the pollution prevention (P2) opportunities identified in Section 5.0 of this report. Information was collected through extensive interviews with facility personnel, site visits, and evaluation of waste disposal and purchasing databases. Waste disposal and purchasing data was collected for all of fiscal year 2000, 2001 and the first three quarters of fiscal year 2002. To establish waste trending, data was reviewed back to fiscal year 1997. The data was used to establish a baseline and to estimate future waste disposal. The identification of these opportunities was determined through a multi-stage process occurring over a 6 month time period. This process consisted of fishbone diagramming the possible causes of waste, brainstorming ideas, screening ideas using a Lean Thinking tool, the P.I.C.K. chart, and conducting technical and cost analyses on the screened options. The results of this PPOA are documented in this report.

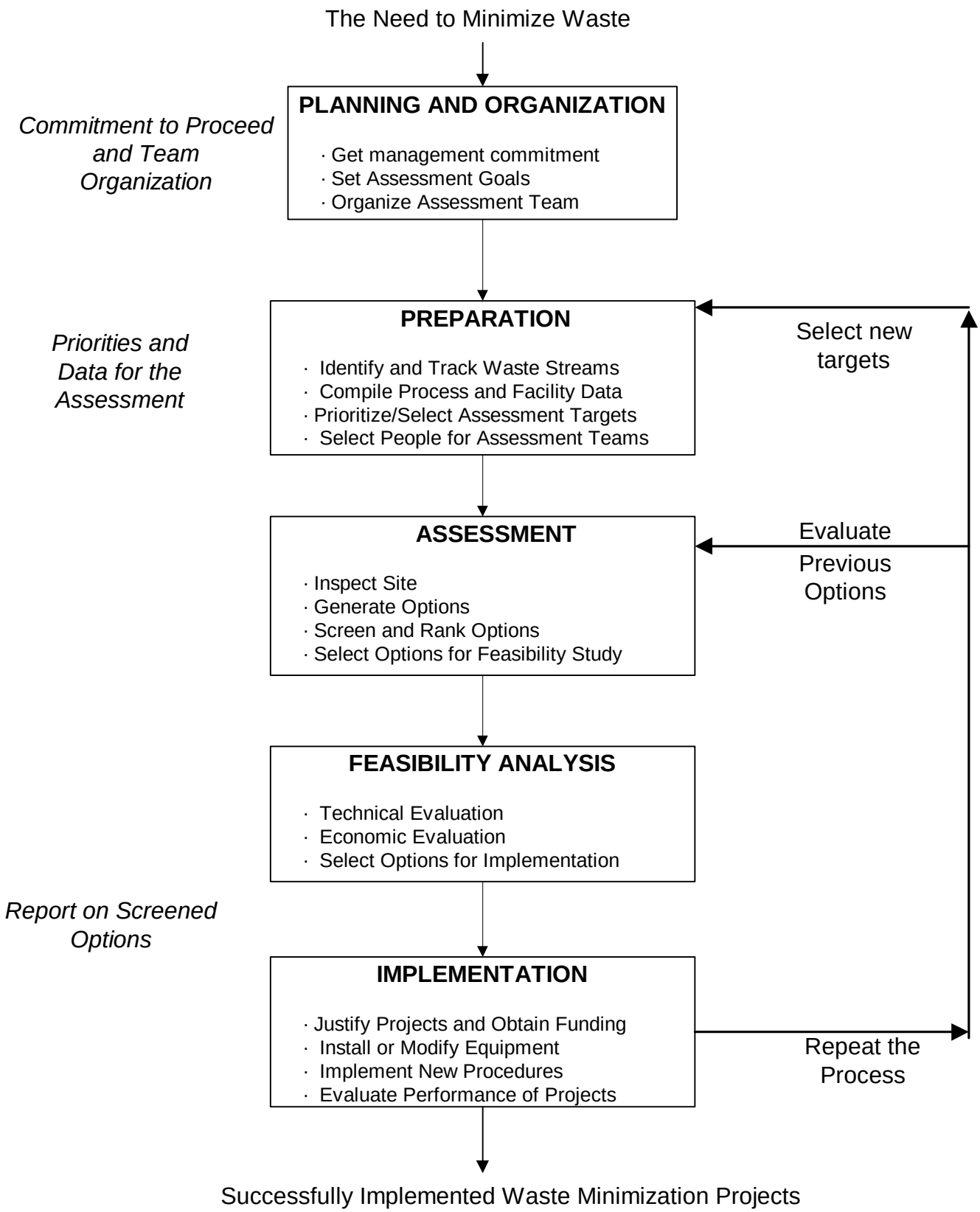
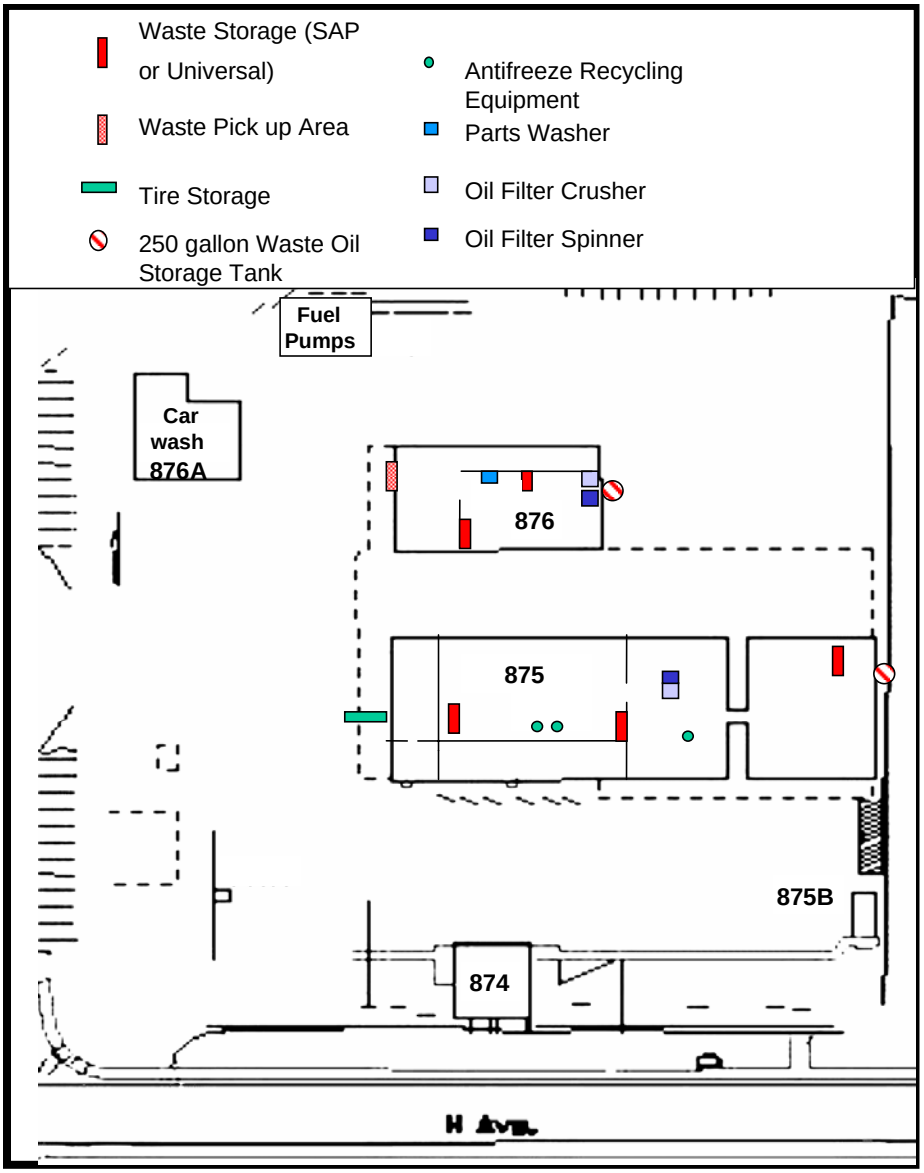


Figure 1. Pollution Prevention Opportunity Assessment Process

Facility Description

The Fleet Services Department operates the Motor Pool Complex at Sandia National Laboratories where they perform preventive, predictive and corrective maintenance activities on vehicles and equipment controlled by SNL/NM. They operate a Vehicle Maintenance Facility for DOE/NNSA OTS fleet over-the-road activities and represent SNL/NM in operations and management of General Service Administration (GSA) leased vehicles. The Fleet Services Department is located in Buildings 874, 875, and 876 on the Northeast side of SNL/NM. Fleet Services was established in 1948 and owns and leases over 2,300 vehicles and equipment valued in excess of $50,000,000. Figure 2 is a schematic of the Motor Pool Complex and associated environmental activities.

Figure 2. Motor Pool Complex



Wastestreams

The first step of this study was conducted in December of 2001. Wastestreams and purchasing information were evaluated by analyzing records from various sources including the Waste Information Management System (WIMS) database and SNL/NM's Affirmative Procurement database. This analysis identified the largest waste generators in the categories of Resource Conservation and Recovery Act (RCRA) regulated hazardous waste, non-RCRA regulated chemical waste, and the areas of non-compliance with SNL Contract Clause II Section I.117: *Acquisition and use of Environmentally Preferable Products and Services.* The results for each of these categories are presented below. Figures 3 and 4 show the total waste produced by Fleet Services by quantity and cost.

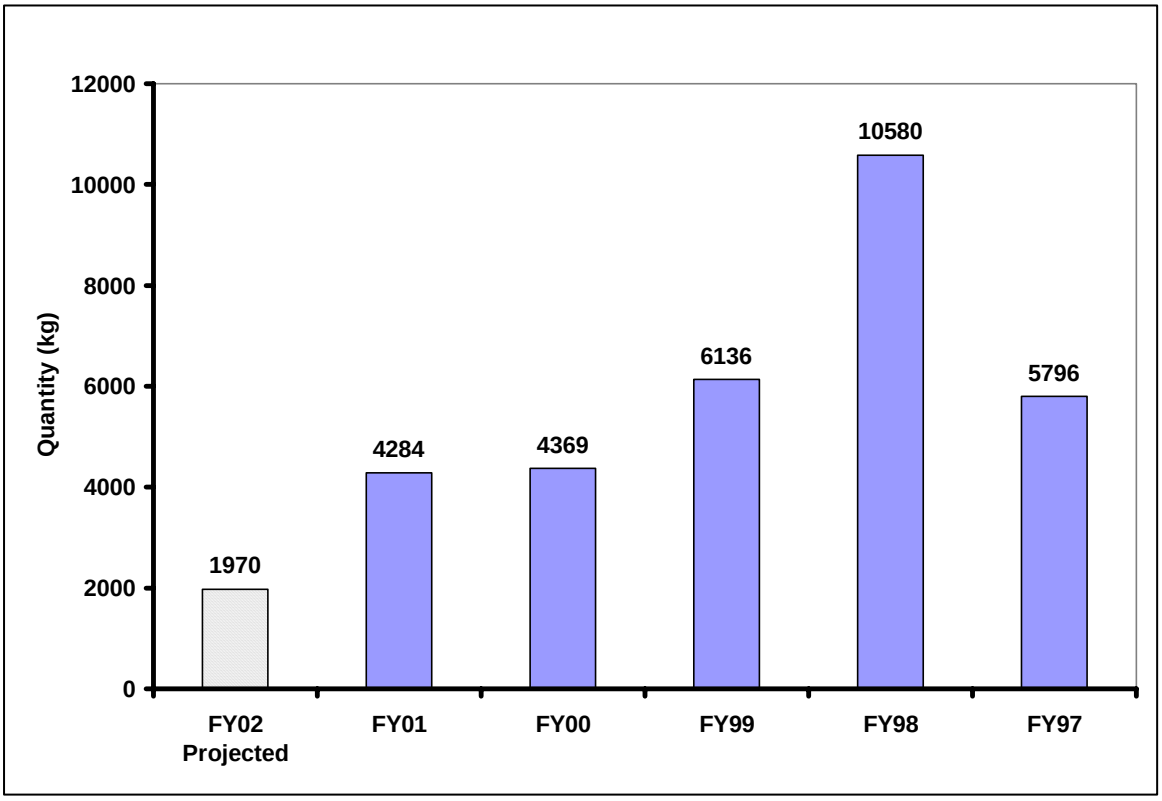


Figure 3. Total Waste by Quantity and Fiscal Year

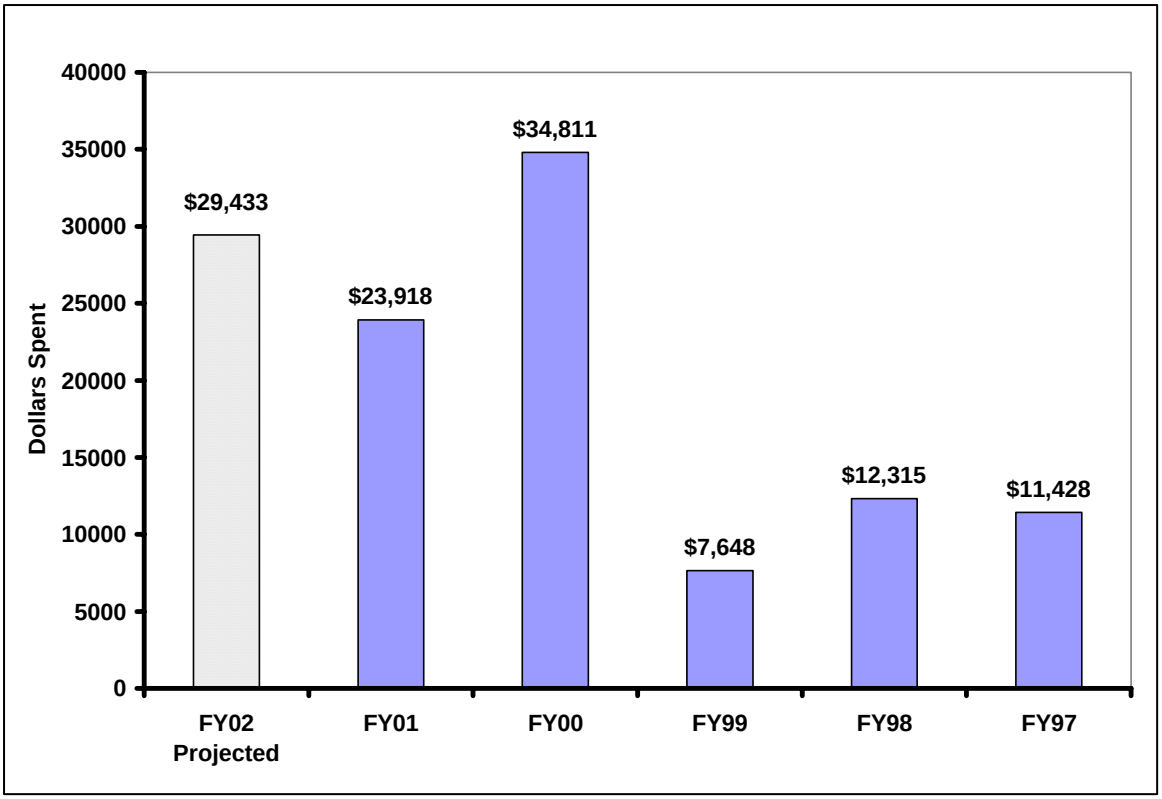


Figure 4. Total Waste by Cost and Fiscal Year

Hazardous Wastestreams

RCRA regulated waste is defined as a waste that meets any of the following conditions: exhibits, on analysis, any of the characteristics of a hazardous waste as defined in 40 CFR 261 Subpart C; has been named as a hazardous waste and listed as such in 40 CFR 261 Subpart D; is a mixture containing a listed hazardous waste and a nonhazardous solid waste; is a waste derived from the treatment, storage, or disposal of a listed hazardous waste; or is not excluded from regulation as a hazardous waste; or at SNL/NM, has been declared a hazardous waste by the waste generator. The quantity and cost incurred by RCRA waste are summarized in Figure 5.

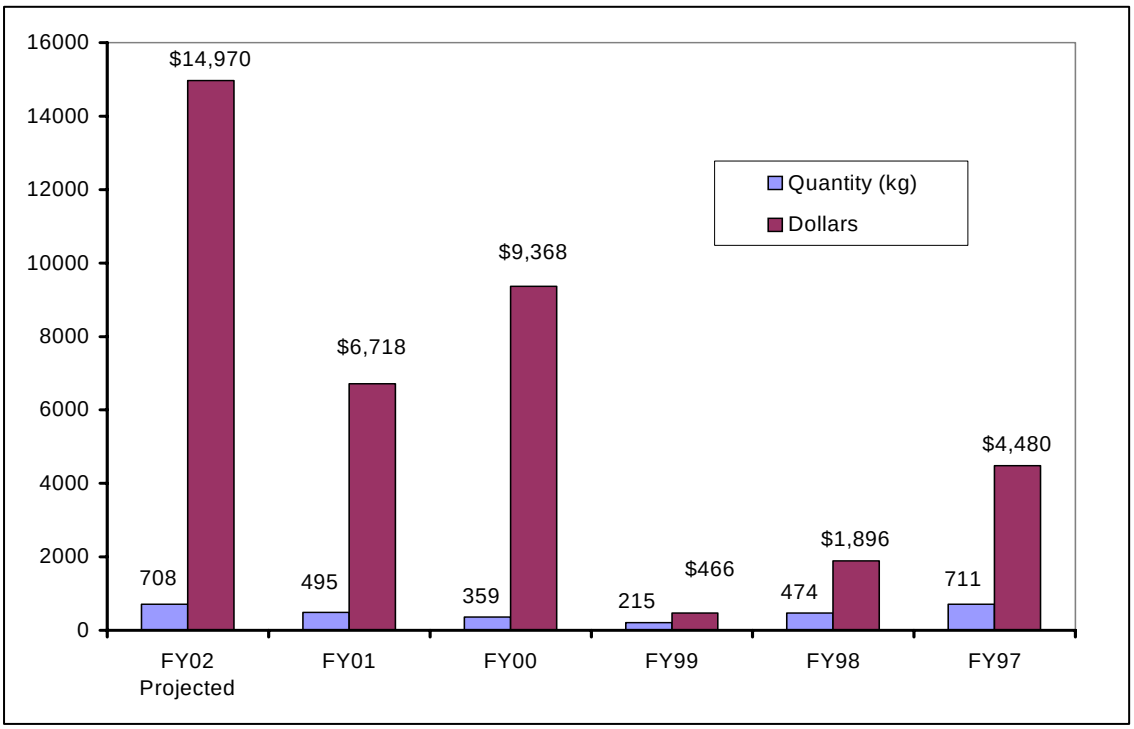


Figure 5. Quantity and Cost of RCRA Waste

Fleet Services produced 6 different hazardous wastestreams in FY02. The hazardous wastestream, quantity, cost and associated activity are shown in Table 1. The largest wastestream for the facility in FY02 is oil/unleaded gasoline/waste mixture generated during vehicle maintenance. In FY01 the largest RCRA wastestream was calcium, which is used to fill large equipment tires.

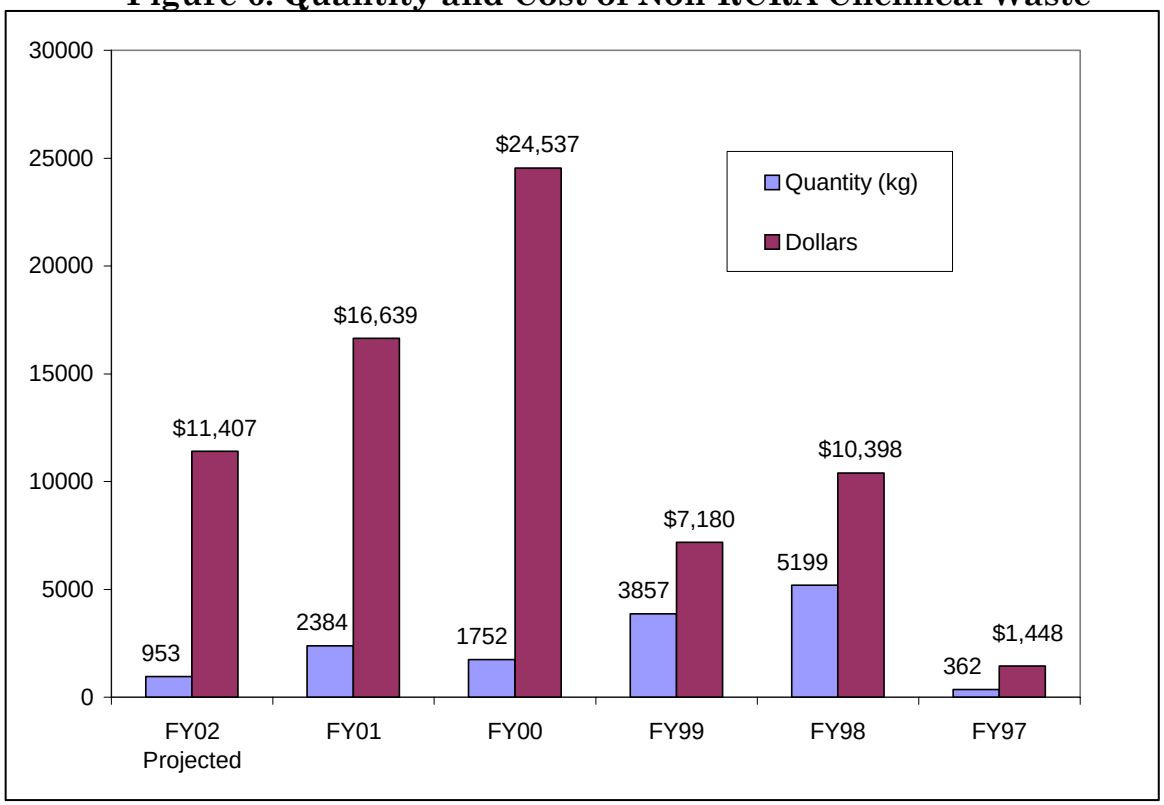
Table 1. 2002 RCRA Wastestreams

Wastestream	Quantity (kg)	Disposal Cost	Waste Generating Activity
2-PROPANOL	7.25	$362	Brake cleaning for OTS Fleet (spec required)
CARB/CHOKE CLEANER/R-12 FREON/WASTE OIL	51.71	$2585	Vehicle Maintenance: Various sources
DIESEL FUEL CONTAMINATED W/UNLEADED GASOLINE	18.6	$930	Fuel system repair: Fuel drained from misfueled vehicle
DIESEL FUEL, WASTE	8.16	$408	Fuel system maintenance
OIL/UNLEADED GASOLINE/WATER MIXTURE	433.1	$6352	Vehicle maintenance: Contaminated secondary containment
UNLEADED GASOLINE	11.79	$589	Fuel system maintenance

Solid Wastestreams: Non-RCRA Chemical

Non-RCRA chemical wastestreams do not meet the definition of "hazardous" as defined in 40 CFR 261, but do require special handling and disposal. The quantity and cost incurred by non-RCRA chemical waste are summarized in Figure 6. Only wastestreams requiring a disposal request that are entered in the Oracle Environmental System are reported. SNL/NM does not currently have a mechanism for tracking individual solid wastestreams disposed to the dumpster.

Figure 6. Quantity and Cost of Non-RCRA Chemical Waste



Fleet Services disposed of approximately 6 different non-RCRA chemical solid wastestreams in FY02 as shown in Table 2. The largest wastestream for the facility in FY02 was diesel-fuel oil contaminated lab trash generated during fuel system maintenance. The largest non-RCRA chemical wastestream for FY01 was waste oil contaminated sand, which is from the vehicle/equipment wash rack used to clean vehicles prior to servicing. Wastestreams not currently tracked by the facility include glass, plastic, cardboard, and aluminum.

Table 2. 2002 Non-RCRA Chemical Wastestreams

Wastestreams	Quantity (kg)	Disposal Cost	Waste Generating Activity
DIESEL-FUEL OIL CONTAM. LAB TRASH	234.97	$2349	Fuel system maintenance clean-up
ETHYLENE GLYCOL/WATER MIXTURE	231.79	$2317	Cooling System Maintenance: Either contaminated or excess
HYDRAULIC FLUID	103.42	$1034	PM shop hydraulic system maintenance/repair
WASTE OIL W/TRACE CONTAMINANTS	88.45	$884	Vehicle maintenance
TRANSMISSION FLUID	53.98	$1889	Transmission maintenance
BRAKE FLUID,SILICON-BASED,DOT 5	2.27	$79	Brake Maintenance

Green Purchasing

RCRA, Section 6002, requires federal agencies to purchase items designated by the Environmental Protection agency (EPA) as having recycled or recovered content. Environmentally Preferable Purchasing (EPP) or Green Purchasing is purchasing products, material and services that have a reduced effect on human health and the environment.

In May of 1996, the Secretary of Energy set a goal increasing the Department of Energy's procurement of EPA-designated items to 100% by December 31, 1999. The EPA allows Federal agencies to exclude from the total purchases those purchases where a product with recycled content was not available competitively, at a reasonable price, within a reasonable time frame, or did not meet performance standards. Figure 7 shows Fleet Services' current performance in meeting the 100% goal by category. Office products include copier paper, notepads and books, binders, toner cartridges, plastic desktop accessories, and plastic trashcans. For a full list of EPA designated products please see http://www.epa.gov/cpg.

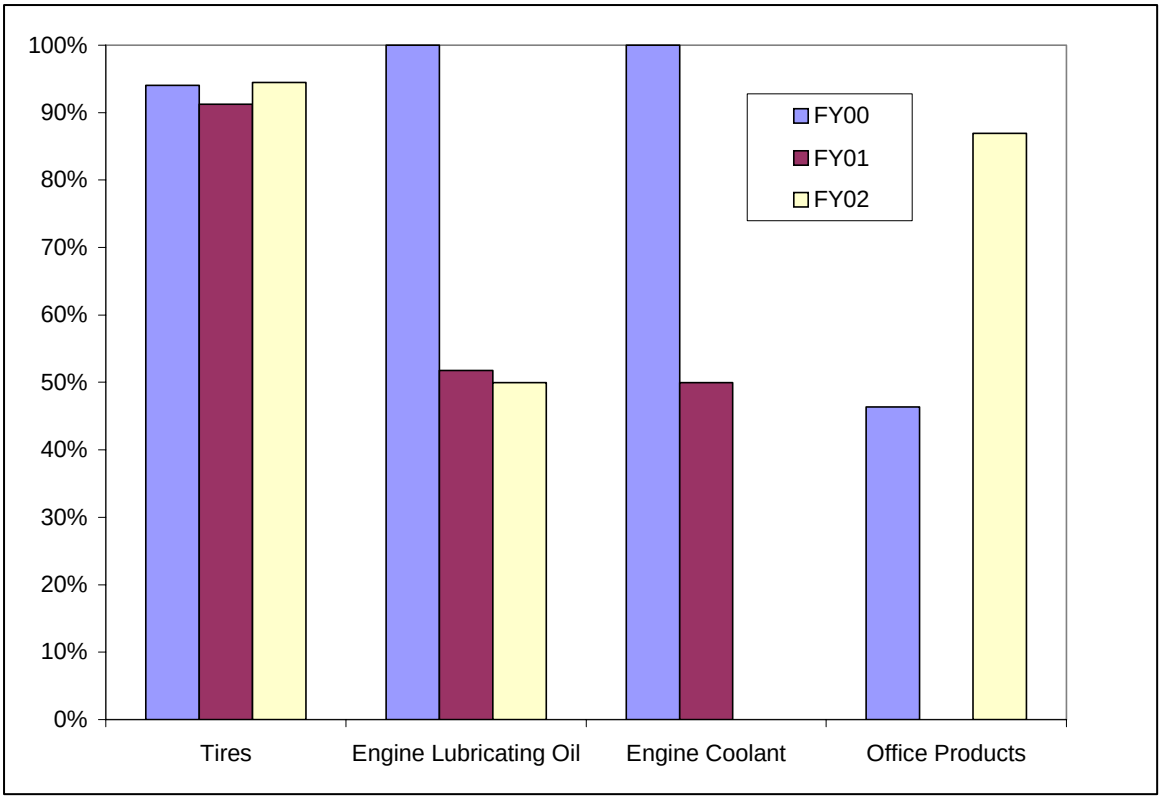


Figure 7. Percentage of EPA-Designated Products Purchased

Waste Generating Processes

The operation and maintenance activities at Fleet Services are diverse and generate a variety of wastestreams. The waste generating activities include:

- Equipment/vehicle maintenance
- Parts cleaning operations
- Car and equipment washing activities
- Fuel dispensing operations

Figures 8 through 11 are flow diagrams of the major processes used and wastestreams associated with each process.

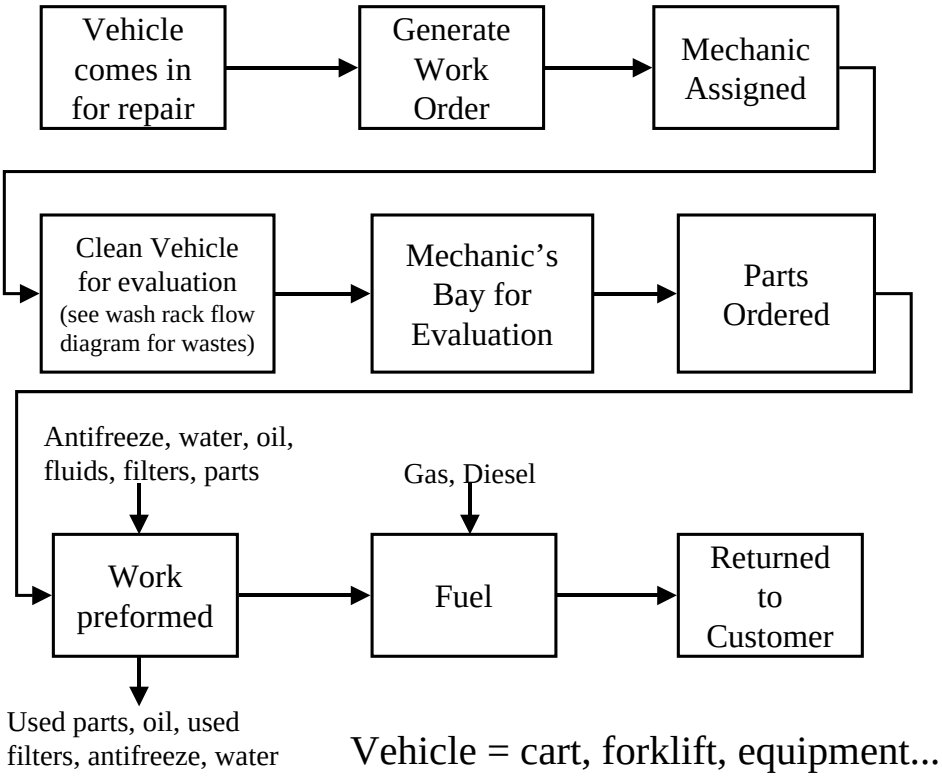


Figure 8. Vehicle Maintenance Flow Diagram with Major Wastestreams

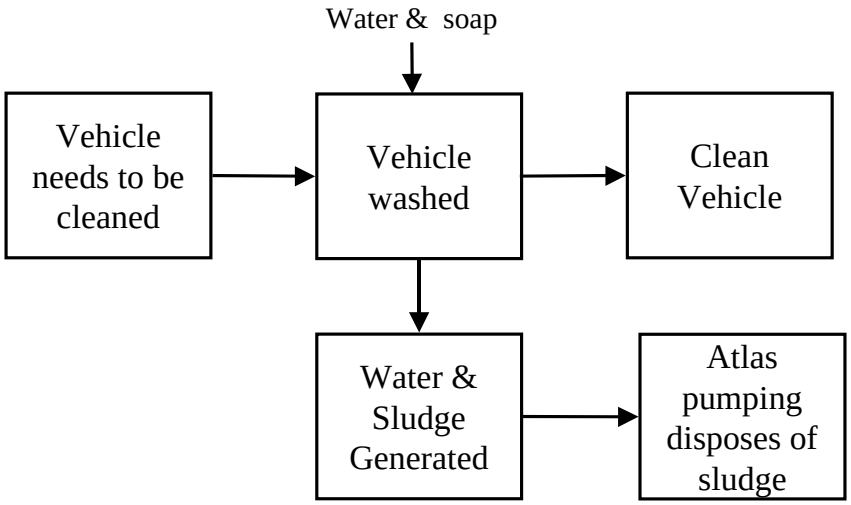


Figure 9. Car Wash Flow Diagram with Major Wastestreams

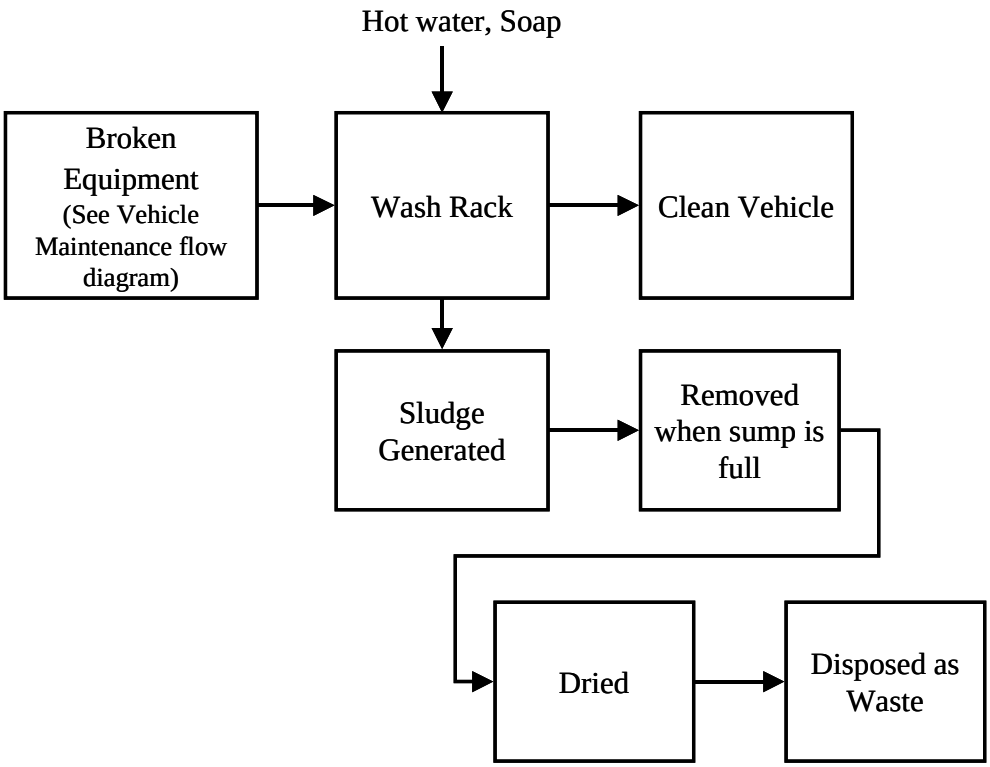


Figure 10. Vehicle Wash Rack Flow Diagram with Major Wastestreams

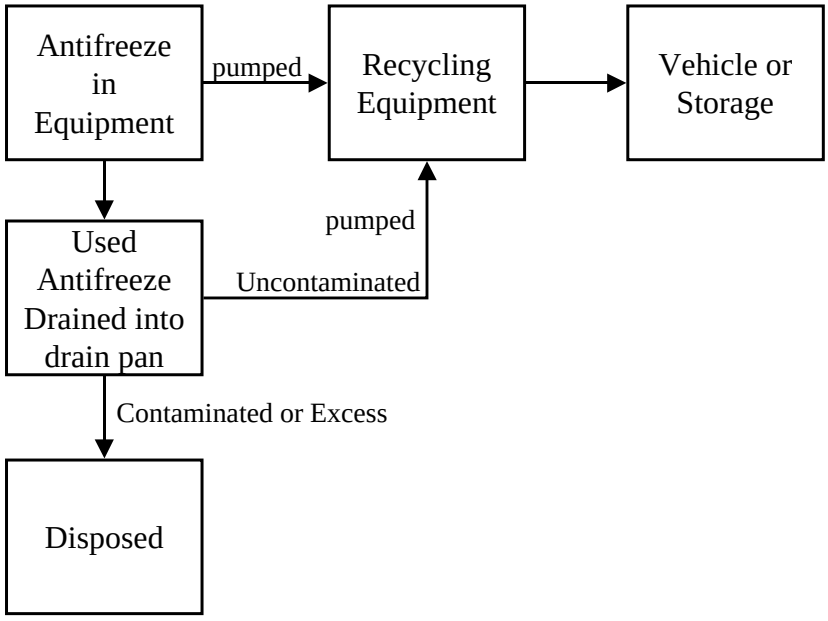


Figure 11. Antifreeze Replacement Flow Diagram with Major Wastestreams

Root Cause Analysis

Fleet Services used a cause and effect diagram to define the possible causes of their wastestreams. This process helped the team to reach a common understanding of why a loss existed, revealed gaps in existing process knowledge, and visually displayed all possible causes for the wastestream. Figures 12 through 17 are the cause and effect diagrams for Fleet's major wastestreams.

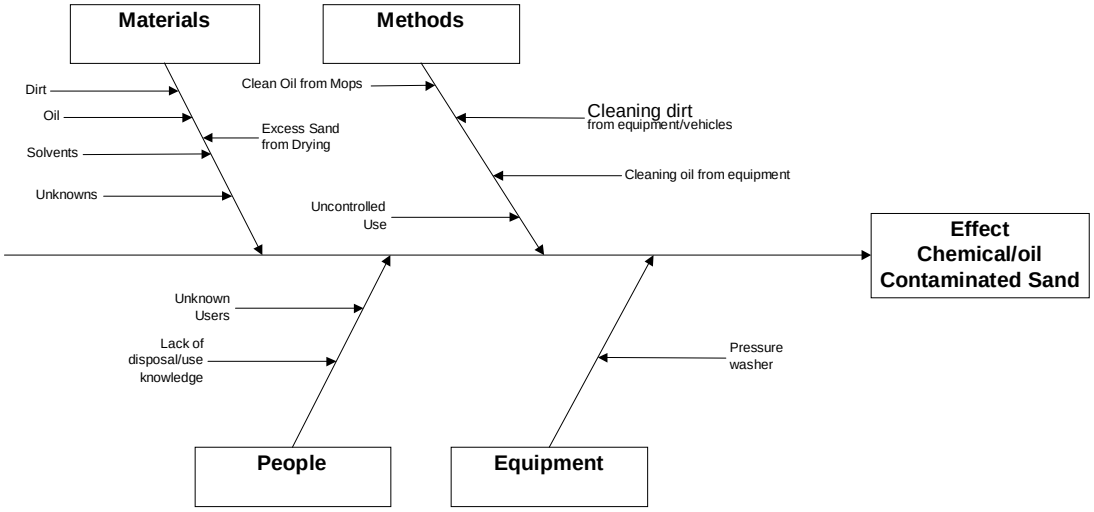


Figure 12. Possible Causes of Chemical/Oil Contaminated Sand Wastestream

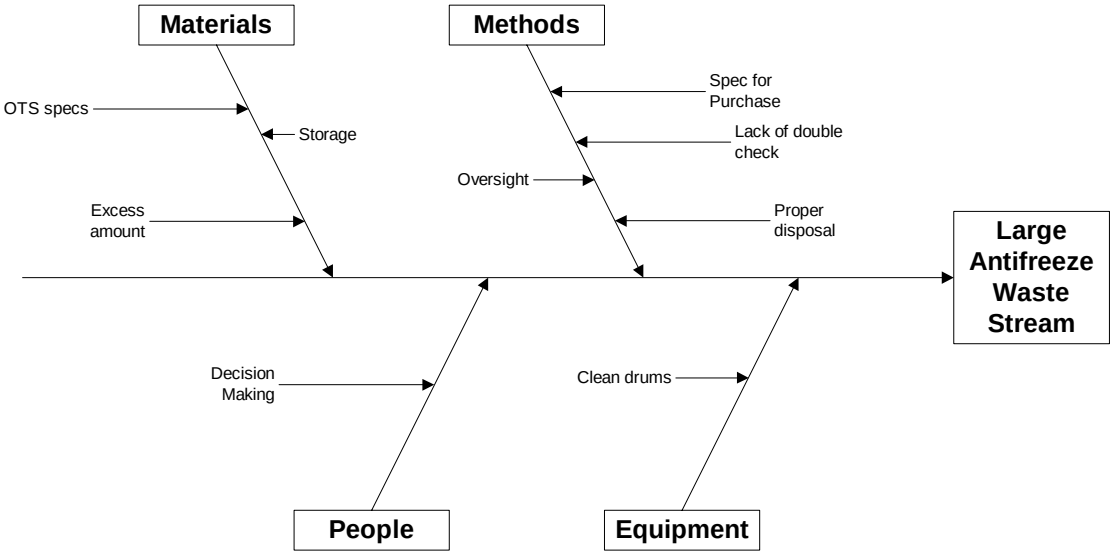


Figure 13. Possible Causes of Excess Antifreeze Wastestream

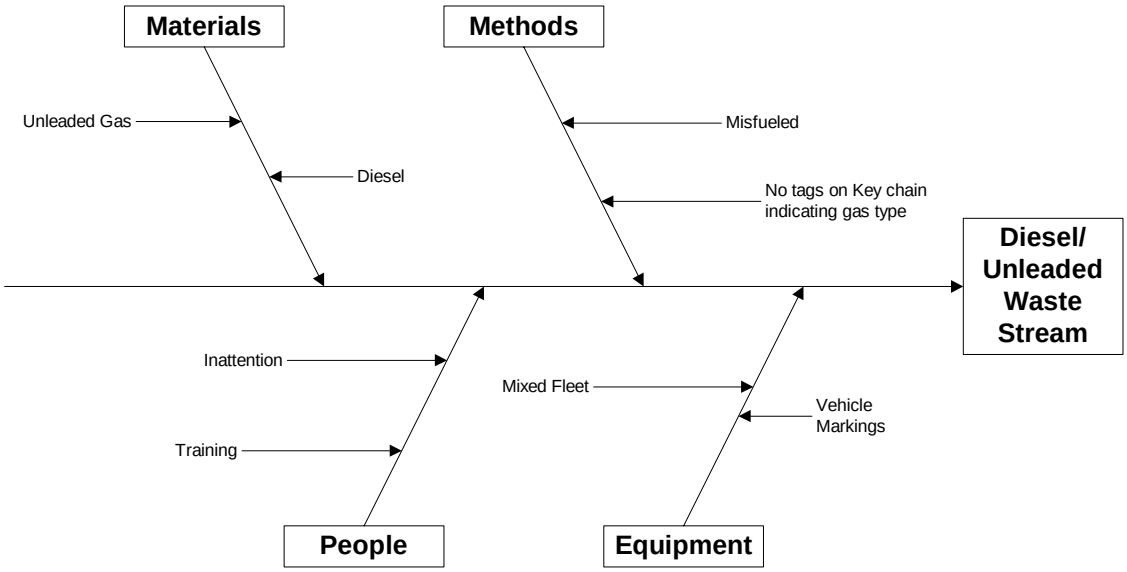


Figure 14. Possible Causes of Diesel/Unleaded Wastestream

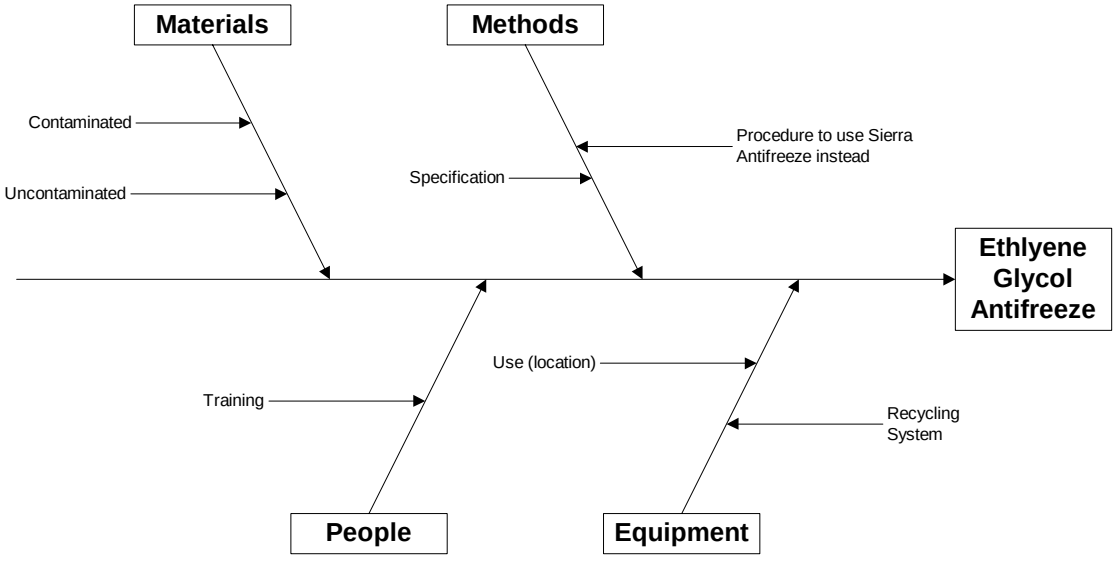


Figure 15. Possible Causes of Ethylene Glycol Wastestream

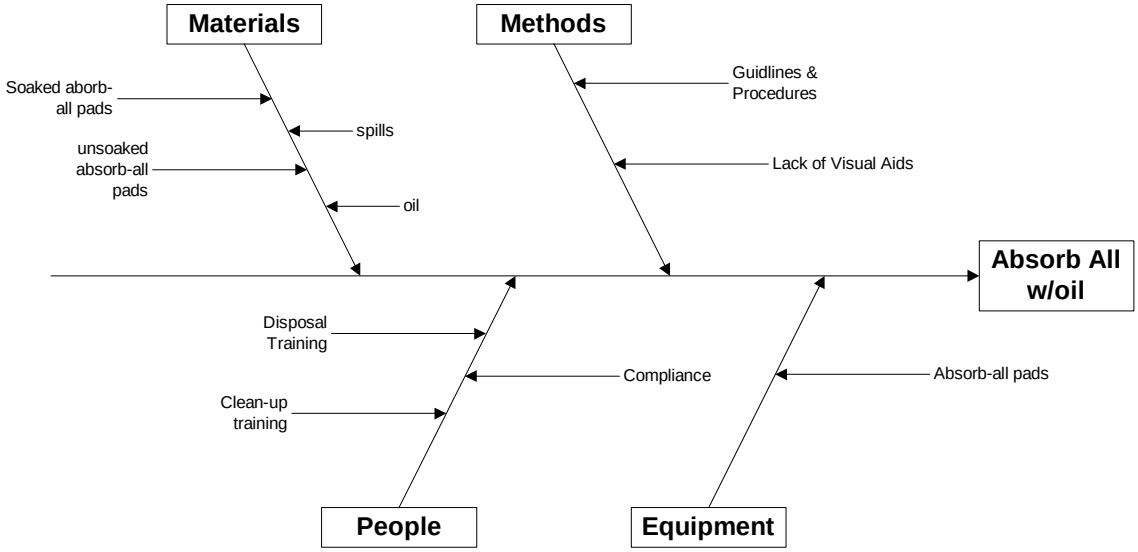


Figure 16. Possible Causes of Oil/Fuel Contaminated Lab Trash Wastestream

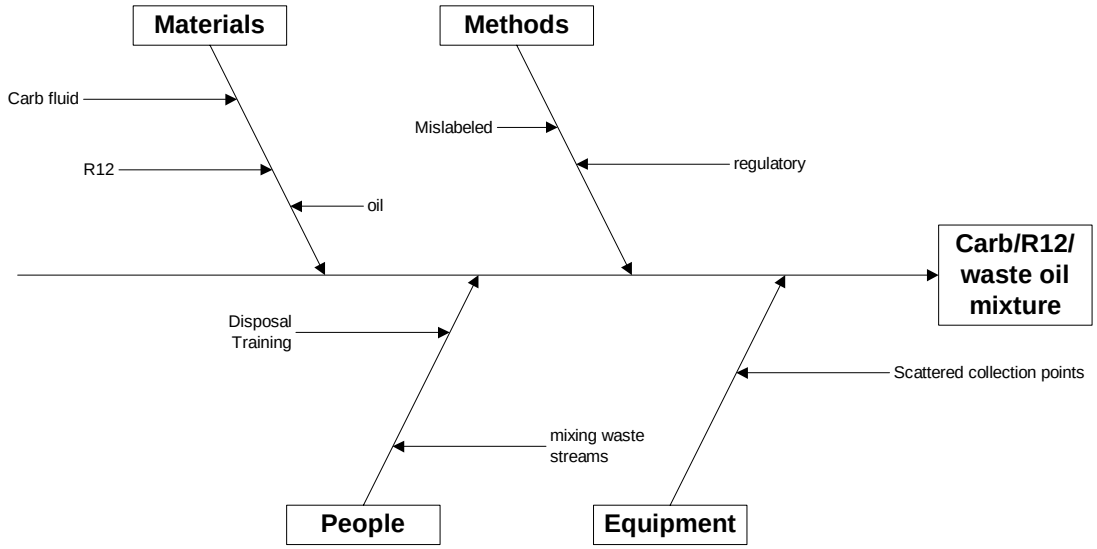


Figure 17. Possible Causes of Carb/R12/Oil Wastestream

Current Activities

Fleet Services is dedicated to creating a "green shop" in their operations with an ongoing commitment toward pollution prevention by practicing waste minimization through source reduction, using less toxic materials by solvent substitution, and recycling and reusing material. Fleet continues to promote

environmental awareness to their staff and have been proactive on PPOAs conducted by the P2 staff. Listed below are some of the "success stories". Several were opportunities identified in previous PPOAs.

Hazardous Waste Elimination

- Closed Loop Oil Recovery System: The system is designed to collect used oil to send to the refiner and in turn purchase new product (re-refined) from the refiner.

- Turbo Spin Machine and OBERG Oil Filter Press: The turbo spin machine removes oil from used oil filters for recycling. The filter is then crushed using the OBERG oil filter press machine. The press extracts any remaining oil for recycling. The crushed filters are then recycled.

- Non-solvent Automatic Parts Washer with Recycle Unit: Fleet Services purchased a washing unit consisting of two high-powered parts washers with a water-recycling unit. The unit uses biodegradable detergent and is self-cleaning; no hazardous waste is generated.

- Brake Clean Mobil Unit: This small mobile unit is placed directly below the axle assembly to clean the brake parts. This unit allowed for the separation of used oil and solvent brake cleaner. The oil is then recycled.

- Cloth Rags: The use of cloth rags replaces the use of paper towels and eliminates the disposal costs for removing the oily paper towels.

Emissions Reduction

- Alternative Fuels Station: Fleet Services just recently updated their fueling station to include a range of alternative fuels including Compressed Natural Gas (CNG), Bio-Diesel (B20), and Ethanol blended unleaded gasoline (E85). This range of alternative fuels will help SNL to meet the requirements of the Energy Policy Act and Executive Order 13149.

Water Conservation

- Recoverable Wastewater Car Wash System: Fleet Services operates a car wash that recovers up to 85% of wash water by filtration cleaning. The system capacity is 3000 gallons which can be used for up to six months. The system uses a biodegradable detergent that is environmentally friendly. The current system is over ten years old and an upgrade will need to occur in the near future.

Product Substitution & Smart Procurement

- Closed loop contracts have been placed for lead-acid batteries, and engine parts. For each new product delivered to Sandia, the supplier accepts and recycles a used product.

- Instead of the conventional ethylene glycol antifreeze. Fleet Services uses Sierra Antifreeze, which is a non-hazardous propylene glycol.

- Absorbent rolls have replaced kitty litter to clean up oil spills and leaks.

- Aerosol cans have been replaced by a refillable sure shot method in some applications.

- Soybean Hydraulic Oil – An Alternative to Petroleum Based Products: Fleet Services teamed with the University of Northern Iowa (UNI) in testing Bio Soy, a soybean-based hydraulic oil in selected vehicles and equipment. Using Sandia's P2 Generator-Set-Aside-Fees, more Bio Soy oil has been purchased to replace the petroleum-based oil in all of Fleet Services hydraulic equipment Fleet and UNI are continuing to work together to improve the product. Advantages to the Bio Soy are that it is renewable, safer, and biodegradable. This product also eliminates a wastestream that was previously disposed of as a hazardous waste.

Pollution Prevention Opportunities

After evaluating the wastestream data, the team participated in a brainstorming session to develop a list of potential waste reduction ideas. The ideas identified for evaluation are summarized below:

Idea 1: Centralized waste storage collection points and visual aids

Idea 2: Conversion of R12 to 134A

Idea 3: Training: Wastestream and outside user training (multimedia)

Idea 4: Low water high pressure washer for the wash rack

Idea 5: Fuel tags identifying type of fuel to be used

Idea 6: New antifreeze recycling equipment

Idea 7: Procedures or engineered controls on wash rack

Idea 8: Internal training (wash rack)

Idea 9: Alternate user list for excess materials

Idea 10: Separate wash area for muddy and oily vehicles

The P2 ideas were further evaluated by the PPOA team based on effectiveness, feasibility, and cost. The ideas were categorized using the P.I.C.K (Possible-Implement-Challenge-Kill) Chart in Attachment 1. The P.I.C.K Chart is a tool used by the facility to rank ideas for implementation. Ideas 1, 3, 5, 8, and 9 were selected for additional investigation, and a technical and economic analysis was performed. Ideas 3 and 8 were combined due to similarities. Each of these opportunities is discussed below. The 4 opportunities are recommended for implementation. They show annual cost savings with quick payback periods, and reductions in hazardous and solid waste or an increase in the purchasing of environmentally friendly products.

Opportunity 1: Centralized waste collection points and visual aids

Waste storage areas are located throughout Fleet Services' facility. Figure 18 outlines the locations of Satellite Accumulation Points (SAPs), Universal Waste Storage Areas, lead-acid battery collection points, tire collection point, used oil collection points, and the locations of current P2 related equipment.

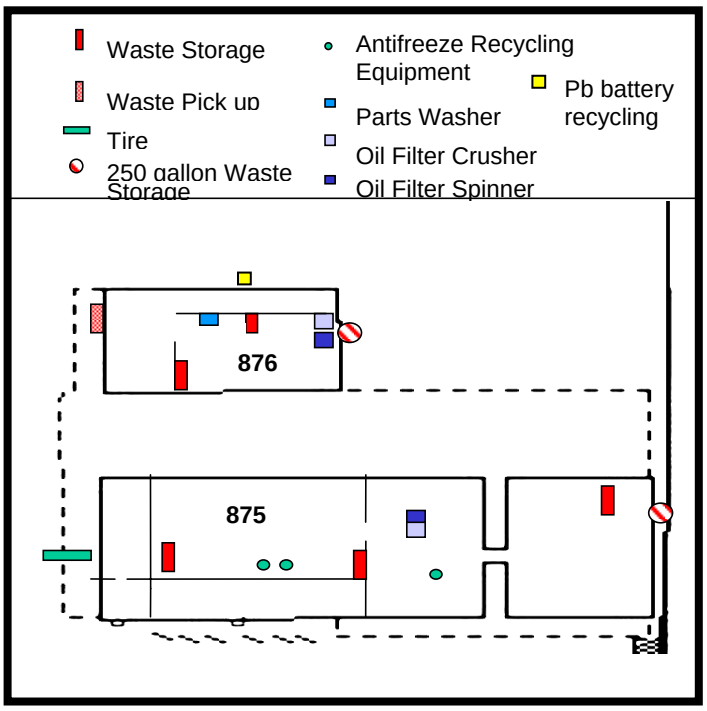


Figure 18: Location of Waste Management Units

Through further investigation it was determined that the current locations of the SAPs are well suited for current operations. Opportunity 1 will then concentrate on improvements that can be made to the visual aids around SAPs to ensure good waste management practices. Figures 19 through 21 are photographs of the

current SAPs and suggestions for improvement that are considered "best management practices"

Figure 19: Waste and Product Storage Area located in Southeast corner of Building 875

Figure 20: Waste and Product Storage Area located in Southwest corner of Building 876

Figure 19 and 20 are located respectively inside of Buildings 875 and 876. Both storage areas are combined product and waste storage with little to differentiate between what is "product" and what is "waste." Although there is no regulatory driver, as a best management practice waste and product should be separated. The same secondary containment can be used for both, but should have some identifiable marking (paint or rope) that separates waste from product. If a spill occurs and is captured in the secondary containment the spill should be cleaned up immediately to prevent the potential interpretation by an auditor of an "open waste container" that is prohibited by RCRA and the SNL ES&H Manual. In addition, increased signage is advised. Signs should be visible stating what the area is used for and what are the major requirements. Attachment 2 has examples of signs that could be used and requirement language.

Figure 21: Waste storage and pick up area located outside west of Building 876

Figure 21 is located outside west of Building 876. This storage area is designated as a SAP and is used for waste pick-up and occasional storage. The SAP allows for storage of up to 55-gallons of hazardous waste. Since the area is not secured (e.g. fenced and locked) it is not considered to be under the control of the generator. As a best business practice it is recommend that all hazardous waste to be stored at this location would either be locked inside the flammable storage cabinet or the area be fenced and locked. This is to prevent accidentally exceeding the 55-gallon limit and to prevent hazardous waste that is not generated at Fleet Services from being left in this storage and Fleet inheriting the cost of managing the waste and disposing of it. Due to the likelihood of exceeding the SAP 55-gallon limit it is also recommend that either the area only be used for waste staging after a waste

disposal form has been filled out or that this storage area be reclassified as a less than 90-day accumulation area. In addition, SAPs are prohibited by regulation from receiving waste from other SAPs. Therefore, it must either become a 90-Day area or not receive waste from other SAPs. The SNL ES&H Manual requires secondary containment for outdoor storage areas. The current secondary containment is adequate to meet the requirement. If a spill occurs and is captured in the secondary containment the spill should be cleaned up immediately to prevent the potential interpretation by an auditor of an "open waste container" that is prohibited by RCRA and the SNL ES&H Manual. In addition, increased signage is advised. Signs should be visible stating what the area is used for and what are the major requirements. Attachment 2 has examples of signs that could be used and requirement language.

Opportunity 2: Training: Wastestream and outside user training

The need for further training was identified as a cause of several wastestreams during the Cause Effect diagramming stage of this PPOA. Currently all Fleet Services staff receive yearly ES&H training. In addition to the yearly training, Fleet Services staff also holds monthly safety meetings. Since several wastestreams seem to be caused by lack of understanding or overlooking previously reviewed information, Opportunity 3 suggests that further training is needed on specific wastestreams and problem areas. Attachment 3 contains additions that can be included in the annual ES&H training. In addition to Fleet's annual ES&H training, waste/product training can be incorporated into the monthly safety meetings and additional training for users can be outlined in pamphlet form. Attachment 3 contains samples of additional training materials.

Opportunity 3: Fuel tags

Mixed diesel and unleaded fuel was Fleet Services' third largest RCRA wastestream in FY02. The cause of this wastestream was identified as user misfueling. Misfueling occurs when the wrong fuel is pumped into a vehicle. Fleet Services then must drain the tank and dispose of the mixed fuel. Once the fuel types are combined they are rendered unusable and the mixed fuel must be disposed of as RCRA hazardous waste. To prevent this wastestream it was identified through the working group that fuel tags either on key chains, mirrors or next to the gas cap could assist users in choosing the proper fuel. Sample tags are included in Attachment 4.

Opportunity 4: Alternate user list for excess materials

Periodically Fleet Services has excess products that Fleet is unable to use within a timely manner. These products are usable materials that are currently being disposed of as waste. Opportunity 6 identified the need to develop an alternate Users list. In developing an alternate Users list Fleet Services will have to keep in mind all requirements for government property. The procedure to determine an alternate user for an excess material/product is outlined in Opportunity 6.

1. Utilize Internal SNL Resources:

The Chemical Exchange Database
http://www-irn.sandia.gov/esh/p2/chem_exchange/
When chemical owners deem items to be excess to their needs, relevant chemical information is entered into the Chemical Exchange Program (CEP) database (click on "input" above left). The owner continues to store that excess material until:

a) The material is requested by someone else.
Note: Requestors should contact the CEP database custodian listed on the site to arrange transportation and to ensure that appropriate changes are made to the database entry.

b) The material is declared waste.
Note: The owner should contact the CEP database custodian to ensure that appropriate changes are made to the database entry.

SNL Reapplication Department: If you have excess property or materials that you want removed from your office or area (includes donating - Sandia has a donation program for schools, etc. managed through this reapplication process):

1. Fill out form SA 6951-TRR "SNL Transportation/Reapplication Form"
2. Contact Transportation at 844-8048 for an Excess Item Pickup
3. Provide the dispatcher with the following information: building, room, number of items, approximate size of the largest item, any special instructions, project and task number (to be used for charge-back whenever hazardous materials are found or whenever leased computer systems arrive incomplete or damaged)
4. Obtain a dispatch number to put on each box (you may need labels too, see your property coordinator)
5. Pack items safely for transport (see Packaging Guidance)
6. Expect a two-day turnaround for pickup

The Property/Assets Management User's Manual can provide additional information on property management and the Corporate Process Requirements for property management.

2. Utilize External Resources:

Fleet Services has the option of using external resources to develop an alternate Users guide, but must keep in mind all requirements for property including useable chemicals. The Property/Assets Management User's Manual can assist in determining requirements for using outside resources. The Manual can be found at: http://www-irn.sandia.gov/manuals/property/prop_toc.html. Possible outside resources include:

The Recycler's Exchange:
http://www.recycle.net/Liquids/cool/xf153000.html
Recycler's World was established as a worldwide trading site for information related to secondary or recyclable commodities, by-products, used & surplus items or materials. This site has areas for both listing materials/products available and materials/products wanted.

DOE EPIC Materials Exchange List:
http://wastenot.er.doe.gov/DOEmatex/login.asp
The User ID is snluser and the password is snlab

This web page has been designed as a prototype in the spirit of pollution prevention for DOE staff to search, identify, and exchange, borrow or share items of interest within the DOE complex. The intent of the DOE Complex-wide Material Exchange prototype is not to replace other existing exchange systems, both at headquarters and in the field, but to promote material exchange within the complex through the use of a central searching and posting capability; data from each DOE facility will continue to be maintained locally.

Additional Pollution Prevention Opportunities

In addition to the Opportunities that were evaluated by the PPOA team the below opportunities are also recommended.

Opportunity 5: Product Substitution & Smart Procurement

Fleet Services currently uses Smart/Green Procurement. Additional opportunities for reducing waste, increasing the use of recycled products, and increasing the use of user safe products are currently available through the enhanced use of Smart/Green Procurement. When Fleet Services is purchasing any goods or material they should:

- Determine if a Closed Loop contract is available: Closed Loop contracts require the vendor to take back the used item at the end of the product life. Preference should be given to vendors that not only take back the used item, but to those who also recycle/reuse it.

- Look for Products that Decrease Health Hazards: Preference should be given to those products that have a reduced affect on worker health and safety. Vendors are usually aware if an alternate product is on the market that has a reduced health affect.

- Ability to Reuse Product: Products that are reusable should be chosen over products that are not reusable.

- Recycle/Remanufactured: Preference should be given to products that are made with recycled materials. SNL has several contracts currently in place with local vendors to supply recycled office products. In addition, Boise Cascade, SNL's current JIT office supply vendor, has an index (page 978-979) of products containing recycled material.

- Biobased products: Substitution of biobased products over traditional products should occur whenever a comparable alternative is available at a reasonable price. The biobased products industry is creating plastics, chemicals, and composite materials from renewable resources. For information on available biobased products go to: http://www.oit.doe.gov/agriculture/

Opportunity 6: Reengineer Car Wash

In 1991 Fleet Services updated their car wash system to include a Car Wash Water Recovery System that recycles 3000 gallons of wash water. The system reclaims 85 percent of the wash water and the water can be used for up to three to six months. Due to the age of the current car wash, a new car wash was purchased in FY2000. The new system does not have a water recirculation system, which, if installed without, would require a NEPA review and is not compatible with either the current electrical output or water capacity. The new system has not been installed due to the above mentioned technical constraints. At some point in the future Fleet Services may either want to purchase a new system or install the system that was purchased in 2000. Opportunity 2 recommends that if Fleet Services does decides to replace the current car wash, a design charrette be initiated, which would bring together all of the relevant subject matter experts, including Engineering and Planning, Fleet Services' management, and ES&H personnel to determine the best path forward.

Conclusion

Fleet Services has an ongoing commitment to pollution prevention by applying source reduction, using less toxic materials, and by recycling and reusing materials. As a result of this PPOA 6 opportunities have been identified for implementation. The 6 opportunities are:

Opportunity 1: Centralized waste collection points and visual aids
Waste storage areas are located throughout Fleet Services' facility. Opportunity 1 concentrates on improvements that can be made to the visual aids around Satellite Accumulation Points (SAPs) to ensure good waste management practices and to minimize cross contamination of recyclable wastestreams.

Opportunity 2: Training: Wastestream and outside user training
The need for further training was identified as a cause of several wastestreams during the Cause Effect diagramming stage of this PPOA. Attachment 3 contains samples of additional training materials.

Opportunity 3: Fuel tags
Mixed diesel and unleaded fuel was Fleet Services' third largest RCRA wastestream in FY02. The cause of this wastestream was identified as user misfueling. To prevent this wastestream it was determined through the working group that fuel tags either on key chains, mirrors or next to the gas cap could assist users in choosing the proper fuel.

Opportunity 4: Alternate user list for excess materials
Periodically Fleet Services has excess products that Fleet is unable to use within a timely manner. These products are usable materials that are currently being disposed of as waste. Opportunity 6 identified the need to develop an alternate Users list. In developing an alternate Users list Fleet Services will have to keep in mind all requirements for government property.

These opportunities show annual cost savings with quick payback periods, and significant reductions in the generation of hazardous and solid waste and increasing the purchase of green products.

Opportunity 5: Product Substitution & Smart Procurement
Fleet Services currently uses Smart/Green Procurement. Additional opportunities for reducing waste, increasing the use of recycled products, and increasing the use of user safe products are currently available through the enhanced use of Smart/Green Procurement.

Opportunity 6: Reengineer Car Wash
Opportunity 6 recommends that if Fleet Services decides to replace the current car wash, that a design charrette be initiated, which would bring together all of the relevant subject matter experts including Engineering and Planning, Fleet Services' management, and ES&H personnel to determine the best path forward.

Attachment 1
P.I.C.K Chart

Description: Fleet PPOA

	Big Pay-	Small Pay-
EASY	• Centralized storage collection Points • Visual Aids • R12-> 134A • Training (wastestream) **Implement**	• Outside user training (multimedia) • Low water high pressure washer • Fuel tags • New antifreeze recycling equipment **Challenge**
HARD	**Possible** • Procedures • Engineered Controls on wash rack • Internal training (wash rack) • Vendor spec Info • Alternate user list for excess materials	**Kill** • Separate wash area for muddy vehicles and oily vehicles

Attachment 2
SAP Signs and Visual Aids

SNL/NM has a JIT contract with Fast Signs to do standard and custom signs. Page 38 of this document is an order form that can be used to order specialized signs.

Satellite Accumulation Point

BASIC REQUIREMENTS

LABELING: All containers must be labeled as Hazardous Waste. Label the outermost disposal container with the Sandia red & white waste disposal label. Fill-in all appropriate information. Dates are not required on waste labels in SAPs.

VOLUME: No more than 55-gallons of hazardous waste or 1 quart of acutely hazardous waste will be stored in this area. Excess of these volumes must be picked-up/removed from the SAP within 3 (three) calendar days.

SEGREGATION: Store only compatible wastes together. Segregate recyclable wastestreams from waste streams that are unable to be recycled.

CLOSED AT ALL TIMES: Containers must be closed, except when waste is being added/removed. Containers should be appropriate and compatible with the waste they contain.

NO TIME LIMIT: There are no time limits on waste stored at a SAP. However it is recommended that waste be picked-up within a "reasonable" amount of time

AT OR NEAR THE POINT OF GENERATION: The SAP must be as close to the process as reasonable, should be in the same room as the waste being generated, and located at least 20 feet from security fences.

UNDER THE GENERATOR'S CONTROL: The owner of a SAP must ensure that unauthorized access is prevented. You shall not allow other generators to drop off wastes at your SAP.

WASTE IDENTIFICATION

Waste - A material is considered waste if it meets any of the following criteria:

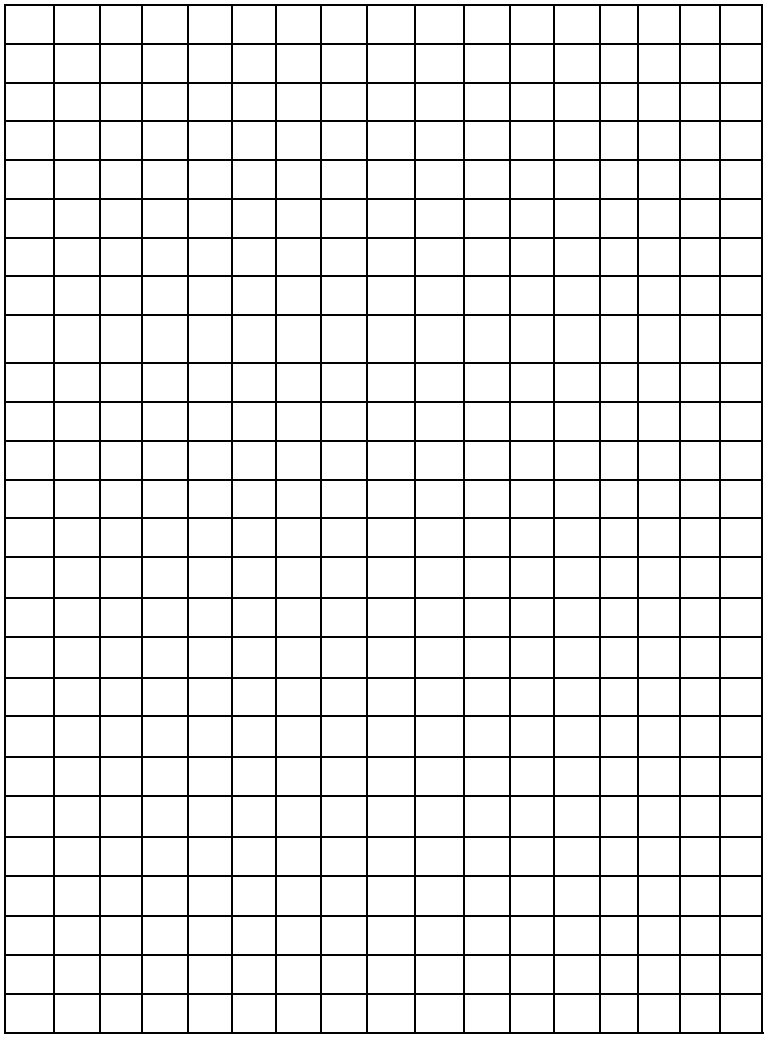
1. It can no longer be used for its intended purpose or for an investigation purpose.
2. It is declared waste
3. It is discarded, abandoned, or there is an element of discard or abandonment, even if it is still usable.

Regard as hazardous waste all waste chemicals, including contained gases, liquids, and solids, unless a waste profile has been performed to determine that they are not hazardous.

Regard as hazardous waste the following waste metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver, unless a waste profile has been performed to determine that they are not hazardous.

Regard as hazardous waste any waste items that are contaminated with or contain any chemicals or metals listed above, unless a waste profile has been performed to determine that they are not hazardous.

JIT Custom Sign Request Form



- ☐ Banner
- ☐ Aluminum
- ☐ Wood
- ☐ Ready to Apply Letters
- ☐ Dimensional Letters
- ☐ Tradeshow Sign
- ☐ Miscellaneous

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_____

_____

_____

JIT Order Information:	***TO PLACE AN ORDER:***
Requester: **(Name as appears in Oracle)**	***Complete Form and Fax to:***
Org./MS#:	***FASTSIGNS***
Phone #:	***8400 Menaul Blvd. NE Ste. C***
Fax #:	***Albuquerque, NM 87112***
Bldg #:	**PHONE: 292-4444**
Room #:	**FAX: 292-4447**
Project #:	**e-mail: judy.gebman@fastsigns.com**
Task #:	**e-mail: judy@swcp.com**

Attachment 3
Wastestream Training

Eight Principles of Pollution Prevention

1. As a shop owner or manager you must be committed to waste reduction if it is to happen in the workplace

2. Know the types of hazardous materials used and waste generated from your operations
   - Know where waste is coming from, and how and why it is generated
   - Know how much waste is generated
   - Control inventory of raw materials, know what hazardous elements they contain, reduce if possible

3. Understand how you manage your waste, and how much it costs you

4. Use "Good Housekeeping" to reduce spills and other wastes

5. Properly accumulate and store waste
   - Keep different waste types in different containers
   - Do not mix solvents with waste oils or coolant
   - Label all containers with use and content information
   - Keep containers covered and make sure they do not leak
   - Avoid spillage when filling containers

6. Train all your employees in the following:
   - Health and Safety protection
   - Proper Waste Management methods
   - Pollution Prevention methods

7. Be aware of regulations that apply to you
   - Assign an employee to keep track
   - Maintain records

8. Keep up-to-date on new technologies for pollution prevention

Attachment 4
Sample Fuel Tags

SNL/NM has a JIT contract with Fast Signs to do standard and custom signs. Page 38 of this document is an order form that can be used to order specialized signs. Below are some examples of the types of tags that can be used to develop tags to assist users in choosing the proper fuel.

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